Determine whether a trajectory has a k-cycle

$$
\begin{aligned}
& \text { traj }=x_{0}, x_{1}, x_{3}, \ldots, \underbrace{-,-1,-,-1}_{k}, \underbrace{\operatorname{vec} 2,1, x_{0}}_{k} \\
& \text { Is }|\operatorname{vec} 1-\operatorname{vec} 2| \text { small? }
\end{aligned}
$$

Find where $k$-cycle bifurcates into $2 k$-cycle


